

SAMPLING INSTRUCTIONS FOR LUMINESCENCE DATING

Fine sand quartz and feldspar (125-250 μm) are the ideal grains for luminescence dating of fluvial, eolian, coastal and marine sediments. Sampling should focus on sandy layers with no or a small amount of mud. Sand rich facies ensure greater exposure of grains on the surface during transport.

Gravity flow deposits are burdensome to date, and sometimes even unfeasible to. In the absence of sand, fine silt (4-11 μm) can also be dated.

Aluminum/steel tubes or **opaque** PVC pipes are used for sampling. If you decide to use PVC pipes, make sure that they are not translucent (look at the tube against a bright light to make sure if no light is passing through). Both ends of the tubes (~3 cm) are discarded during sample preparation and only the inner section not exposed to light during sampling will be used for analysis. If the sediment is very cohesive, a block can be collected (15x15x15 cm) and 2-3 cm of each face of the block (that was exposed to light) will be discarded during sample preparation and only the inner section not exposed to light during sampling will be used for analysis.

Tubes/pipes approximate dimensions

Diameter: 4-7 cm

Length: 20-30 cm

Straighten up the outcrop or pit wall with the aid of shovel, especially the sampling layer, and insert the tube in it (see image below).



Remove the tube and cover its ends to protect it from light. Try to completely fill up the tubes to avoid mixing of exposed and unexposed sediments inside after sampling. If you are not able to



fully fill the tube with the sampled sediment itself, you can use packaging peanuts, packaging foam, bubblewrap or similar to fill it. Close both ends of the tube using Ethylene-vinyl acetate (EVA) caps (or similar) and tape (i.e., insulating tape, silver tape or masking tape).

Paired samples for environmental radiation dose rate should also be collected. Sample ~300-500 g of sediment in a 30 cm radius of where you inserted the tube, and pack it in a plastic bag. This sample does not need to be protected from light. If this sampling is not possible, we can use a part of the sample inside the tube to measure the radiation dose rate. However, an independent sample for this purpose is preferable, as it makes sample preparation and analysis easier.

IMPORTANT: write down coordinates, elevation (this information can be extracted from Google Earth) and sampling depth. This information is used to determine the cosmic radiation dose rate. If you sample below the water level, write this down (if you're not sure, take a photo with scale).

Essentially, you should sample protected from light and with as much sand as possible.